



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of )  
Hisashi OHTANI et al. )  
Serial No. 09/226,216 )  
Filed: January 7, 1999 )  
For: SEMICONDUCTOR DEVICE )  
AND METHOD OF )  
MANUFACTURING THE SAME )

Art Unit: 2813  
Examiner: L. Schillinger

**CERTIFICATE OF MAILING**

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P.O. Box 1450, Alexandria, VA 22313-1450, on 12-1-03

*Charles M. Stanger*

**RESPONSE**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

The Official Action mailed July 29, 2003, has been received and its contents carefully noted. Filed concurrently herewith is a *Request for One Month Extension of Time*, which extends the shortened statutory period for response to November 29, 2003. Accordingly, the Applicants respectfully submit that this response is being timely filed.

The Applicants note with appreciation the consideration of the Information Disclosure Statements filed on June 9, 2000, and May 2, 2002. The Applicants note again that the Information Disclosure Statement filed March 2, 1999, has not been acknowledged. As a courtesy, the Applicants have attached a copy of the Form PTO-1449 submitted March 2, 1999. The Applicants respectfully request that the Examiner provide an initialed copy of Form PTO-1449 evidencing consideration of the Information Disclosure Statement filed March 2, 1999.

Claims 5-9, 16-18, 20-22, 24-38 and 40-44 are pending in the present application, of which claims 5, 7, 16, 20 and 40-43 are independent. For the reasons set forth in detail below, all claims are believed to be in condition for allowance.

Paragraph 2 of the Official Action rejects claims 5-9, 16-18, 20-22, 24-38 and 40-44 as anticipated by U.S. Patent No. 6,087,679 to Yamazaki et al. The Applicants

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respectfully traverse the rejection because the Official Action has not established an anticipation rejection.

As stated in MPEP § 2131, to establish an anticipation rejection, each and every element as set forth in the claim must be described either expressly or inherently in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Applicants respectfully submit that an anticipation rejection cannot be maintained against the independent claims of the present invention. Yamazaki does not teach all the elements of the independent claims, either explicitly or inherently.

It appears that Yamazaki discloses the steps of forming amorphous silicon film 503 over a substrate 501, crystallizing the amorphous silicon film 503 by a heat treatment with a catalyst element, patterning the crystallized silicon film to form an island-like semiconductor layer 508, forming a gate insulating film 509, removing or reducing the catalyst element, forming a gate electrode 513, adding an impurity element, and irradiating a laser to activate the impurity element (see columns 4-7 and Fig. 5 and 6).

Independent claims 5, 16, 40 and 41 of the present invention recite the steps of forming a gate electrode over an insulating surface, and forming a gate insulating film over the gate electrode. Yamazaki appears to teach forming a gate insulating film 509 and then forming a gate electrode 510 over the gate insulating film 509. Yamazaki does not teach, either explicitly or inherently, forming gate insulating film 509 over gate electrode 510. Therefore, the Applicants respectfully submit that Yamazaki does not teach forming a gate electrode over an insulating surface, and forming a gate insulating film over the gate electrode, either explicitly or inherently.

Further, independent claims 7 and 42 recite the steps of promoting crystallinity by irradiation of laser light or intense light and adding an impurity to said semiconductor film to form a pair of impurity regions in said semiconductor film after promoting crystallinity by irradiation of laser light or intense light. The Official Action asserts that "the laser annealing taught in Col. 7, lines: 45-50 [of Yamazaki] is to repair crystalline structure after implanting impurities into the active region" (page 11, Paper No. 30). In other words, the laser annealing in Yamazaki is performed after implanting impurities.

The Yamazaki step of laser annealing after implanting impurities is not explicitly or inherently the same as adding an impurity after promoting crystallinity by irradiation of laser light or intense light. Therefore, the Applicants respectfully submit that Yamazaki does not teach promoting crystallinity by irradiation of laser light or intense light and adding an impurity to said semiconductor film to form a pair of impurity regions in said semiconductor film after promoting crystallinity by irradiation of laser light or intense light, either explicitly or inherently.

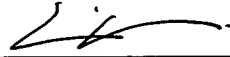
Further, independent claim 20 recites the step of patterning the crystallized semiconductor film into at least one semiconductor island after removing the film comprising germanium. Yamazaki appears to teach a step of gettering a catalyst element after patterning a semiconductor film to form an island-like semiconductor layer 508. The Yamazaki step of gettering after patterning is not explicitly or inherently the same as patterning after removing a film comprising germanium. Therefore, the Applicants respectfully submit that Yamazaki does not teach patterning the crystallized semiconductor film into at least one semiconductor island after removing the film comprising germanium, either explicitly or inherently.

Further, independent claim 43 recites the step of patterning the crystallized semiconductor film into at least one semiconductor island after irradiation of laser or intense light. Yamazaki appears to teach a step of irradiating a laser after patterning a semiconductor film to form an island-like semiconductor layer 508. The Yamazaki step of irradiating a laser after patterning is not explicitly or inherently the same as patterning after irradiation of laser or intense light. Therefore, the Applicants respectfully submit that Yamazaki does not teach patterning the crystallized semiconductor film into at least one semiconductor island after irradiation of laser or intense light, either explicitly or inherently.

Since Yamazaki does not teach all the elements of the independent claims, either explicitly or inherently, an anticipation rejection cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(e) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,



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Reg. No. 38,285

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21010 Southbank Street  
Potomac Falls, Virginia 20165  
(571) 434-6789



AF/2813

PTO/SB/21 (08-00)

<b>TRANSMITTAL FORM</b>  <i>(to be used for all correspondence after initial filing)</i>	Application Number	09/226,216
	Filing Date	January 7, 1999
	First Named Inventor	Hisashi OHTANI et al.
	Group Art Unit	2813
	Examiner Name	L. Schillinger
Total Number of Pages in This Submission	Attorney Docket Number	0756-1921

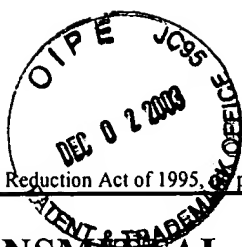
ENCLOSURES (check all that apply)				
<input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input checked="" type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Declaration and Power of Attorney <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosures 1. 2. 3. 4. 5. 6.		
<table border="1"><tr><td>Remarks</td><td><input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees required or credit any overpayments to Deposit Account No. 50-2280 for the above identified docket number.</td></tr></table>			Remarks	<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees required or credit any overpayments to Deposit Account No. 50-2280 for the above identified docket number.
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Eric J. Robinson, Reg. No. 38,285 Robinson Intellectual Property Law Office, P.C. PMB 955 21010 Southbank Street Potomac Falls, VA 20165
Signature	
Date	December 1, 2003

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PTO/SB/17 (10-03)

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**FEE TRANSMITTAL  
FOR FY 2004**

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant Claims small entity status. See 37 CFR 1.27.

TOTAL AMOUNT OF PAYMENT (\$110.00)

**Complete if Known**

Application Number	09/226,216
Filing Date	January 7, 1999
First Named Inventor	Hisashi OHTANI et al.
Examiner Name	L. Schillinger
Group Art Unit	2813
Attorney Docket No.	0756-1921

**METHOD OF PAYMENT**

- 1.
- ☐
- The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

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- Charge Any Additional Fee Required
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- Under 37 CFR 1.16 and 1.17 and
- 
- credit overpayments

- ☐
- Applicant claims small entity status.
- 
- See 37 CFR 1.27

- 2.
- ☒
- Payment Enclosed:

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- Credit Card
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- Order
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- Other

**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Fee Code	Large Entity Fee (\$)	Small Entity Fee Code	Small Entity Fee (\$)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) (\$)

**2. EXTRA CLAIM FEES**

Total Claims	Extra Claims	Fee from below	Fee Paid
	-20** =	\$18	
Independent Claims	-3** =	\$86	
Multiple Dependent			

Large Entity Fee Code	Large Entity Fee (\$)	Small Entity Fee Code	Small Entity Fee (\$)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

\*\*or number previously paid, if greater; For Reissues, see above

**FEE CALCULATION (continued)****3. ADDITIONAL FEES**

Fee Code	Large Entity Fee (\$)	Small Entity Fee Code	Small Entity Fee (\$)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	\$110.00
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	465	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.29(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) \_\_\_\_\_

\* Reduced by Basic Filing Fee Paid

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*Ashe M. Stamps*

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Name (Print/Type)	Eric J. Robinson	Registration No.	38,285	Telephone	(571) 434-6789
Signature	<i>Eric J. Robinson</i>	(Attorney/Agent)		Date	December 1, 2003